
SKYLINE 11MBTM WIRELESS PC CARD

User's Guide

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CHAPTER 1

Introduction

Farallon's SkyLINE 11Mb™ Wireless PC Card provides network connectivity for laptop computers equipped with a PC Card (PCMCIA) slot. SkyLINE allows computers to join an IEEE 802.11 compliant DSSS wireless Local Area Network (LAN). A wireless LAN offers the advantages of a wired LAN in situations where it is impractical to run conventional wiring.

The SkyLINE 11Mb Wireless PC Card allows Macintosh PowerBook and Windows notebook users to build an Ad Hoc network or connect to an Infrastructure network. An Ad Hoc network connects two or more computers directly to each other. An Infrastructure network allows computers to tap into the resources of a wired network using a wireless LAN access point. An access point (such as Apple's AirPort Base Station) links wireless computers to an Ethernet network.

Farallon's SkyLINE 11Mb Wireless PC Card uses a radio frequency modulation technology called Direct Sequence Spread Spectrum (DSSS), which provides up to 11 Mbps bandwidth. The card's compliance with the 802.11b standard ensures compatibility with many popular wireless access points as well as interoperability with other DSSS 802.11 compatible wireless devices.

In situations where more than one access point is used, a computer with the SkyLINE card installed can roam from access point to access point, significantly increasing the range of the wireless LAN.

SKYLINE 11MB WIRELESS PC CARD FEATURES

- Compatible with other 2.4 GHz/DSSS wireless cards and LAN access points
- Complies with IEEE 802.11b standards for easy interoperability
- Provides network services anywhere within range, without wires
- Operable with existing Ethernet equipment in combination with an access point or a software router
- Provides drivers for Mac OS, Windows 95/98 and Windows NT
- Easy Plug-and-Play installation
- Supports popular network protocols including TCP/IP, AppleTalk, NetBEUI and IPX/SPX
- Offers an extended range up to 150 feet indoors and up to 300 feet outdoors
- Provides multi-channel frequency selection between 2.4 GHz to 2.4835 GHz
- Delivers a data rate of up to 11 Mbps using Direct Sequence Spread Spectrum (DSSS) radio technology, which is more resistant to the effects of noise than other wireless technologies
- Automatically adjusts data rate, stepping down speed from 11 to 5.5 to 2 and 1Mbps to increase range
- Requires no external circuitry or AC power, and uses low power consumption to preserve computer battery life

PACKAGE CONTENTS

Your SkyLINE 11Mb Wireless PC Card package should include the following:

- SkyLINE 11Mb Wireless PC Card
- Farallon software CD-ROM for Mac and Windows
- This user's guide

SYSTEM REQUIREMENTS

MACINTOSH

- PowerBook that meets Mac OS 7.5.5 requirements or higher (up to Mac OS 9), including the G3, 2400, 3400, 1400, 5300 and 190 PowerBooks
- Available PC (PCMCIA) card slot
- Minimum 16 MB RAM (24 MB RAM for Mac OS 8.5 and up)
- Farallon SkyLINE 11Mb Wireless PC Card driver for Macintosh (provided)

WINDOWS

- Windows notebook with Windows 95/98 or Windows NT 4.0
- Original Windows 95/98 or Windows NT software CD or diskettes
- Available PC (PCMCIA) card slot
- Minimum 16 MB RAM
- Farallon SkyLINE 11Mb Wireless PC Card driver for Windows (provided)

INFRASTRUCTURE NETWORK REQUIREMENTS

An Infrastructure network requires the use of one or more IEEE 802.11 DSSS compliant wireless LAN access points.

When the network is configured properly, a portable computer with the SkyLINE 11Mb Wireless PC Card installed can access a number of different brands of access points when they are in use on a network.

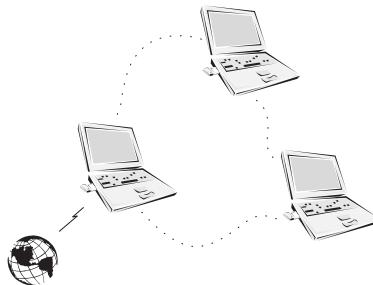
For an updated list of compatible access points, visit us online at www.farallon.com or call 510-346-8001.

NETWORK CONFIGURATION

Computers with Farallon's SkyLINE 11Mb Wireless PC Card installed can join a wireless LAN configured as an Ad Hoc or Infrastructure network.

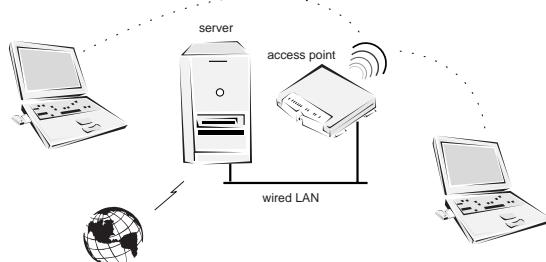
AD HOC NETWORK

The Ad Hoc network offers peer to peer connections between workstations, allowing communication between computers within range that have an 802.11 DSSS compatible PC card installed. A wireless Ad Hoc network can also access a wired LAN's TCP/IP services (such as email and the Internet) by using a TCP/IP software router on an Ethernet equipped PowerBook or notebook.



INFRASTRUCTURE NETWORK

The Infrastructure network uses an access point (or several access points) as a gateway, linking the wireless network to a wired LAN. As a result, portable workstations on your wireless network have access to all of the features of your wired LAN including email, Internet access, network printers and file servers.



CHAPTER 2

Installation

Installation of your SkyLINE 11Mb Wireless PC Card involves three steps:

- Installing the software
- Installing the card
- Configuring the card and networking software

The SkyLINE 11Mb Wireless PC Card can be configured for use with wireless networks using Ad Hoc mode or Infrastructure mode. During configuration you also set the card to the Address mode (Translation or Encapsulation of Ethernet packets) of your network.

The SkyLINE 11Mb Wireless PC Card can be used in a cross-platform environment, allowing Macs and PCs wireless connectivity on a shared network. This chapter is divided into sections that address installation and configuration for both Mac OS and Windows.

- Installation for Mac OS, see page 6.
- Installation for Windows 95/98, see page 16.
- Installation for Windows NT, see page 20.

MACINTOSH INSTALLATION

Macintosh installation begins with the SkyLINE 11Mb Wireless PC Card driver software. Once the driver is installed, you can install the card and configure it using the Wireless Control Panel. Finally, you must configure the networking software on your Macintosh to use the wireless card for your network.

Note: If you do not have a CD-ROM drive in your computer, you can download the driver software from the Farallon website at www.farallon.com. A disk image is also available on the Farallon CD-ROM included in your SkyLINE 11Mb Wireless PC Card package. This disk image can be used to create an installer diskette on a desktop machine with a CD-ROM drive.

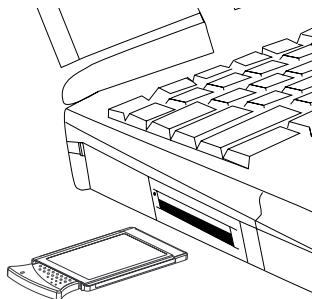
INSTALLING SKYLINE SOFTWARE

The SkyLINE 11Mb Wireless PC Card requires Mac OS 7.5.5 or higher.

1. With your computer's power on, insert the Farallon CD-ROM into the CD drive of your computer.
2. Double-click the **Installer** icon. The Easy Install dialog box appears.
3. Click the **Install** button. The Installer places the required networking software in your System Folder.
4. After installation is complete, restart your computer and continue installation instructions on the next page.

INSTALLING SKYLINE HARDWARE

1. After installing the driver and restarting your computer, insert the SkyLINE 11Mb Wireless PC Card into a PCMCIA slot on your PowerBook.



2. The **Farallon Wireless** icon will appear on your desktop.



Continue with “Configuring the SkyLINE Card for Macintosh” on the next page.

CONFIGURING THE SKYLINE CARD FOR MACINTOSH

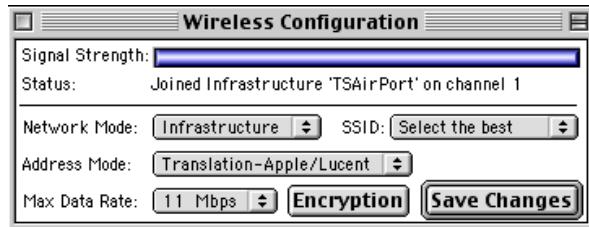
Use the **Wireless Configuration** Control Panel to configure your card for use with a wireless network. All devices on the network, including any access points, must be set to the same configuration settings.

Click the **Save Changes** button to establish the wireless connection after you have finished setting up or making changes to your Wireless Configuration.

1. Open the **Wireless Configuration** Control Panel by double-clicking the **Wireless** desktop icon.



2. The **Wireless Configuration** window will open, offering several pop-up menus to help you configure your wireless network.



Note: Choose **Show Balloons** from the **Help** menu for more information about the items in the configuration panel.

SAVE CHANGES BUTTON

The configuration pop-up menus offer configuration choices described below. Always remember to click the **Save Changes** button at the bottom corner of your configuration panel when you have finished setting up or making changes to your Wireless Configuration.

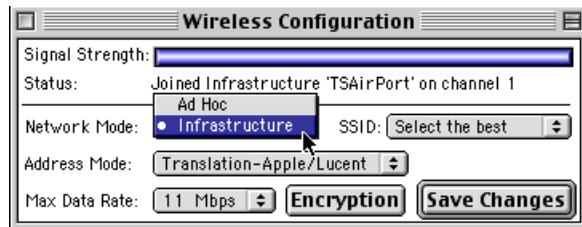
CONFIGURING YOUR CARD FOR YOUR NETWORK

If you have access points installed on your network you will need the following information to configure your SkyLINE 11Mb Card:

- SSID (Service Set Identification): the name of the access point
- Address mode: how wireless packets are being converted to Ethernet on your wireless network
- Max Data Rate: the maximum rate of data transmittal on the network
- Encryption: any passwords or keys used by your access point for Wireless Encryption (WEP)

NETWORK MODE

Configure your **Network Mode** by selecting Ad Hoc or Infrastructure from the Network Mode pop-up menu.



Ad Hoc mode

Ad Hoc mode allows wireless computers to be linked on a local area network. In Ad Hoc mode all operations are peer to peer and no access point is required. Ad Hoc networks can only be started when computers are within range of each other (approximately 150 feet depending on environment). If you select Ad Hoc, you will also select a **Channel**. All computers must have the same channel and Address Mode selected.

Note: See "Ad Hoc with Macintosh and Lucent" on page 40 if you are connecting to an iBook computer using Ad Hoc mode.

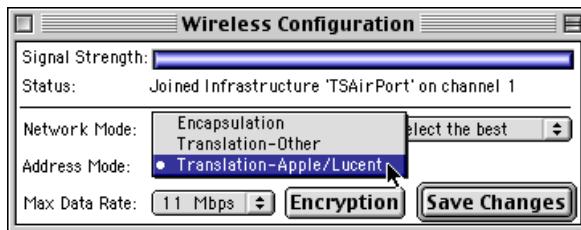
Infrastructure mode

In Infrastructure mode, all wireless communication between mobile computers and the wired LAN take place through a wireless access point. If you select Infrastructure mode, you must configure the wireless card by setting the SSID selection, Address mode and Encryption to correspond to the access point you are using.

ADDRESS MODE

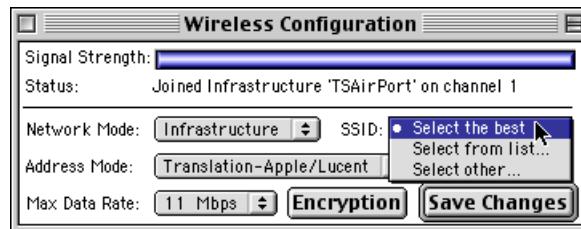
Next you must set your **Address Mode**. The address mode determines how the Ethernet packets on your network are addressed. All devices on the network, including any access points, must be set to the same address mode setting.

The default setting for **Address Mode** is **Translation-Apple/Lucent**, which is compatible with Apple AirPort products. If you are not using Apple's AirPort or a Lucent brand access point, select **Translation-Other** or **Encapsulation** and click **Save Changes** to test the setting.



SSID SELECTION

Be sure to click the **Save Changes** button after you select or change your SSID (Service Set Identification) selection method.



The SSID pop-up menu offers three access point selection methods:

- Select the best
- Select from list
- Select other

SSID Select the best

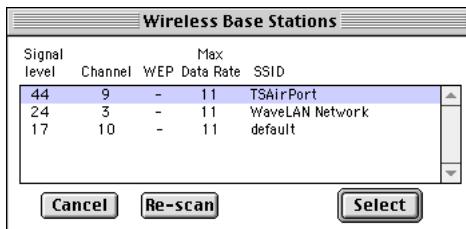
This method automatically scans for available access points and picks the one with the strongest signal level. Pick **Select the best** from the SSID pop-up menu and then click the **Save Changes** button. The name

of the access point with the strongest signal will appear in the Status window at the top of the configuration panel.

SSID Select from list

This method opens a window displaying a list of available wireless access points. The panel shows the data rate of each access point and whether WEP (encryption) is enabled on that access point.

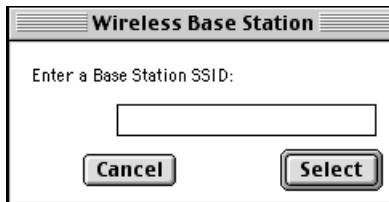
Highlight the name of the desired access point and click the **Select** button. You can also simply double-click the name of the desired access point and it will be selected. Click the **Re-scan** button if all of the access points you are expecting to see do not appear on the list.



When you return to the Wireless Configuration panel, be sure your network and address modes match the settings for the access point you selected from the list. Then click the **Save Changes** button.

SSID Select other

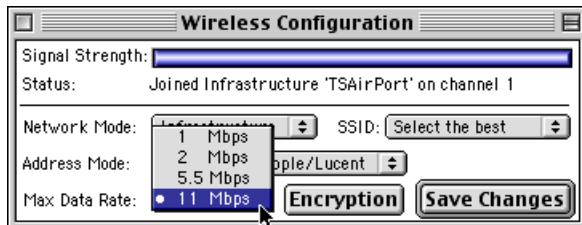
This selection method allows you to enter the name of the access point you want to use into the Wireless Base Station panel. This is useful if an access point is in closed mode, or configured not to appear unless the user knows the exact name of that access point.



Enter the name of the access point you want to use and click the **Select** button. The panel is case and space sensitive, so be sure to enter the name precisely. When you return to the Wireless Configuration panel, be sure your network and address modes match the settings for the access point you selected from the list. Then click the **Save Changes** button.

DATA RATE

Use the **Max Data Rate** pop-up menu to set the rate of data transmission to 1 Mbps, 2 Mbps, 5.5 Mbps or 11 Mbps. A higher data rate allows higher throughput, a lower data rate allows better performance at a greater distance from the access point.



The SkyLINE driver will automatically adjust the data rate to compensate for distance from the access point in use. The closer a computer is to an access point, the greater the performance will be.

Since a lower data rate allows for greater distance from the access point, manually selecting a lower data rate may help with network performance in some situations.

ENCRYPTION

Clicking the **Encryption** button opens the **Wireless Encryption** panel, where you can set up encryption keys to decipher and encode data on the wireless network.



Check the **Enable Encryption** box if you are connecting to an access point that has encryption enabled.

If you are using Apple's AirPort base station with WEP, enter the

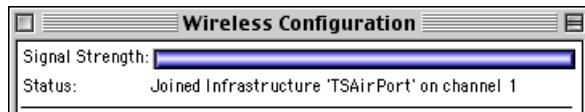
AirPort's password into the first panel. The software will automatically transform your password into a numerical key code.

If you are connecting to another brand of access point that uses WEP, you can manually enter as many as four keys (provided by your network manager) and switch between them as desired. Keys must be hexadecimal digits (meaning they are limited to combinations of the numbers 0-9 and letters A-F).

Refer to the documentation that came with your access point for more information about WEP implementation.

STATUS WINDOW

The **Status** text string at the top of the configuration window shows the name of the active access point and channel. If the card is configured for an Infrastructure network, the **Signal Strength** meter will appear, indicating the strength of the card's connection to the access point.

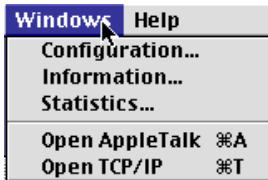


After you have configured the Wireless Control Panel, configure the AppleTalk and TCP/IP Control panels of your Macintosh (see instructions on the next page).

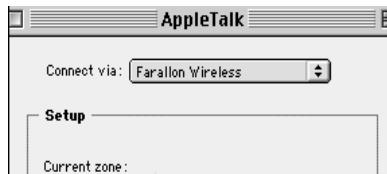
CONFIGURING MACINTOSH NETWORKING SOFTWARE

After you have configured the Wireless Control panel, you will need to configure the AppleTalk and TCP/IP Control panels of your Macintosh.

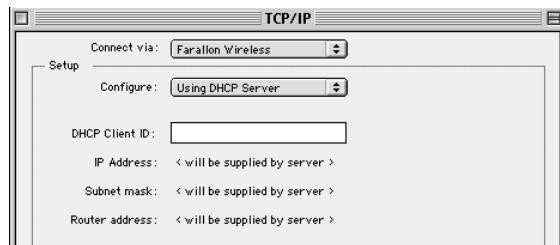
1. Open the Wireless Control Panel. The **Windows** menu allows immediate access to the **Information** and **Statistics** panels as well as your computer's **AppleTalk** and **TCP/IP Control Panels**.



2. Open the AppleTalk Control Panel and select **Farallon Wireless** from the **Connect via** pop-up menu. (For PowerBook models 190, 1400 and 5300, select **Alternative Ethernet** from the **Connect via** pop-up menu). When you are finished, close the Control Panel and save your settings.



3. Open the TCP/IP Control Panel from the Windows menu and select **Farallon Wireless** from the **Connect via** pop-up menu. Make sure the rest of your TCP/IP panel is configured correctly for your wireless network.



4. Close the TCP/IP panel, saving your changes.

CARD EJECTION

To properly eject the SkyLINE 11Mb Wireless PC Card, drag the Wireless desktop icon into the Trash. Manual ejection without first trashing the desktop icon can freeze your system.

Do not attempt to eject the card by pulling on it.

On PowerBooks 190, 1400, and 5300, switch your AppleTalk connection from **Alternate Ethernet** using the **AppleTalk** Control Panel before trying to eject the card. The system automatically disables AppleTalk when the card is ejected.

Note: If you are using Mac OS 9's **Enable File Sharing Over TCP/IP** function be sure to uncheck the box for this option before ejecting the card.

When the wireless card is re-inserted, you must activate AppleTalk in order to use AppleTalk services.

WINDOWS INSTALLATION

Have your original Windows system software CD-ROM or diskettes on hand when you begin installation.

Note: If you do not have a CD-ROM drive in your computer, you can download the driver software from the Farallon website at www.farallon.com. A disk image is also available on the Farallon CD-ROM included in your SkyLINE 11Mb Wireless PC Card package. This disk image can be used to create an installer diskette on a desktop machine with a CD-ROM drive.

If you have access points installed on your network you will need the following information to configure your SkyLINE 11Mb Card:

- SSID (Service Set Identification): the name of the access point
- Address mode: how wireless packets are being converted to Ethernet on your wireless network
- Data rate: the rate data is being transmitted on the network
- Encryption: any passwords or keys used by your access point for Wireless Encryption (WEP)

WINDOWS 95/98 INSTALLATION

INSTALLING SKYLINE SOFTWARE

1. Insert the SkyLINE CD-ROM into the CD drive of your computer.
2. The software installer should start. If the CD does not autostart, select **Run** from the **Start** menu, and type **x:setup.exe** (where x is the designation of your CD ROM drive). Click **OK**.
3. Select **Next** at each screen to install the software, and **Yes** to accept the software agreement.
4. When prompted, enter the name of your local area network **SSID**. This name must be the same for all computers on the network. The SSID name is case and space sensitive and must be entered precisely.
5. When prompted, select **Ad Hoc** or **Infrastructure** network mode.

Ad Hoc: Ad Hoc allows several wireless workstations to be linked on a local area network. In Ad Hoc mode all the operations are

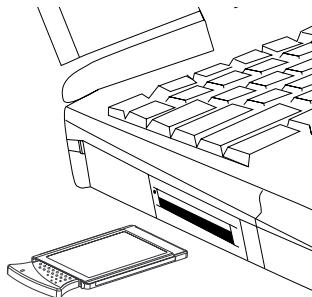
peer to peer and no access point is required.

Infrastructure: Infrastructure mode requires the use of an access point. All wireless communication will take place between individual workstations and the access point, which links the wireless network to a wired LAN.

6. Put the driver files into the default or specified directory location.
7. Select **Yes** if prompted to overwrite any files. Select **Finished** and **Yes** when prompted to restart the computer.
8. After installation is complete, shut down your computer and continue with the installation of the card.

INSTALLING SKYLINE HARDWARE

1. With your computer powered down, insert the SkyLINE 11Mb Wireless PC Card into a PCMCIA slot on your notebook.



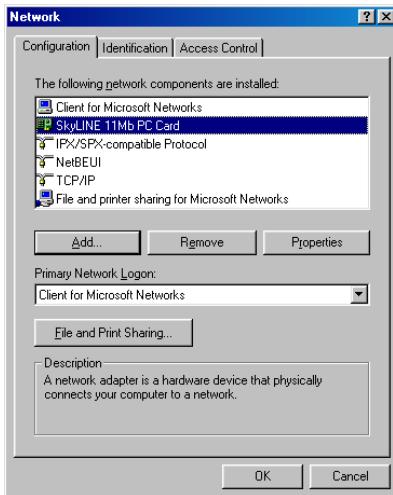
2. Turn on the computer.
3. In Windows 95/98 you will see a **found new hardware** message when the system detects the card.

Note: You may be prompted for the location of the windows system files and/or the location of the SkyLINE driver files. If so, insert the Farallon CD into the CD ROM drive and locate the **CW10.sys** file on the CD. If prompted for the Windows CD ROM, insert the Windows CD into the CD ROM drive, and locate the operating system files on the CD.

4. After restart, you should see the **SkyLINE monitor** icon in the Windows taskbar. Continue on the next page with configuration instructions.

CONFIGURING WINDOWS 95/98 NETWORKING SOFTWARE

If you plan to use Windows 95/98 peer to peer networking, you must have the Client for Microsoft Networks, NetBEUI and TCP/IP protocols in your Network Control Panel.



If your Network configuration is already complete, skip to “Network identification:” on page 19.

If not, follow instructions below to install the needed protocols, then read “Network identification:” on page 19.

To add Client for Microsoft Networks:

1. Right click the **Network Neighborhood** icon and select **Properties**, or select **Start > Settings > Control Panel > Network**.
2. Open the Network Control Panel. (The SkyLINE card should appear in the network component box.)
3. Click the **Add** button, select **Client** and click **Add**.
4. Select **Client for Microsoft Networks** and **OK**.

To add the NetBEUI protocol:

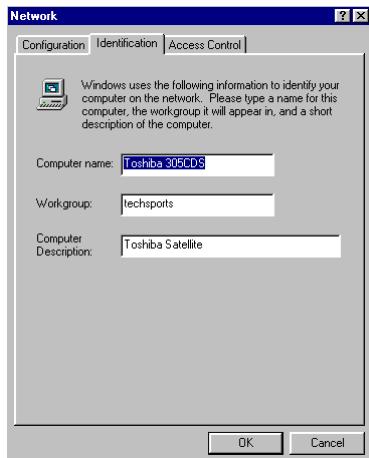
1. Open the **Network** Control Panel.
2. Click the **Add** button, select **Protocol** and click **Add**.
3. Select **Microsoft > NetBEUI** and **OK**.

To add the TCP/IP protocol:

1. Open the **Network** Control Panel.
2. Click the **Add** button, select **Protocol** and click **Add**.
3. Select **Microsoft > TCP/IP** and **OK**.

Network identification:

1. Click on the **Identification** tab in the Network Control Panel.

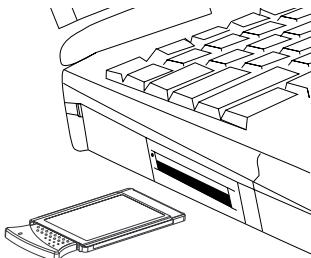


2. Enter a unique name for your computer, and a workgroup name. Computers that will share files or printers should use the same workgroup designation.
3. Enter a description of this computer. This description will be visible to other computers on the network. Click **OK** to close the Network Control Panel.
4. If prompted for the Windows CD ROM, insert the Windows System CD into the CD ROM drive, type **x:\win95** or **x:\win98** (where x is the designation of your CD ROM drive) and click **OK**.
5. Close the Network Control Panel and restart the computer when prompted.

After restart, you should see the **SkyLINE monitor** icon in the Windows taskbar. For more information, see “Configuring the SkyLINE Card for Windows” on page 21 and “Operation and Troubleshooting” on page 23.

WINDOWS NT 4.0 INSTALLATION

1. Insert the SkyLINE Wireless Card into a PCMCIA slot on your notebook and start up the computer.



2. Insert the SkyLINE CD into your notebook's CD-ROM slot. The software installer should start. If the CD does not autostart, select **Run** from the **Start** menu, and type **x:setup.exe** (where x is the designation of your CD ROM drive). Click **OK**.
3. The installer will offer a series of screens and prompts. Select **Next** at each screen to install the SkyLINE software and **Yes** to accept the software agreement.
4. When prompted, enter the name of your local area network **SSID**. This name must be the same for all computers on the network. The SSID name is case and space sensitive and must be entered precisely.
5. When prompted, select **Ad Hoc** or **Infrastructure** network mode.

Ad Hoc: Ad Hoc allows several wireless workstations to be linked in a local area to form a wireless network. In Ad Hoc mode all the operations are peer to peer and no access point is required.

Infrastructure: Infrastructure mode requires the use of an access point. All wireless communication will take place between individual workstations and the access point, which links the wireless network to a wired LAN.

6. Put the driver files into the default or specified directory destination.
7. Select **Finished** and **Yes** when prompted to restart the computer.

After restart, you should see the **SkyLINE monitor** icon in the Windows taskbar. For more information, see "Configuring the SkyLINE Card for Windows" on page 21 and "Operation and Troubleshooting" on page 23.

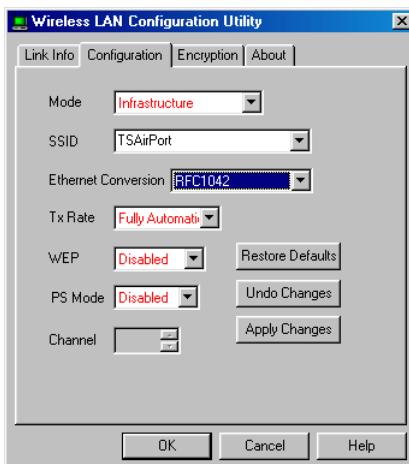
CONFIGURING THE SKYLINE CARD FOR WINDOWS

Use the configuration utility to modify the card's configuration after software installation. All devices on the network, including any access points, must be set to the same configuration settings.

1. Open the Configuration Utility by double clicking on the SkyLINE monitor icon located on the Windows taskbar. The monitor icon is green if the PC has link, and red if it does not have link.



2. The Station Configuration panel appears.



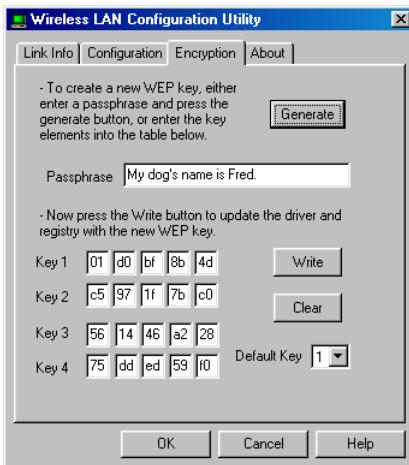
Make any desired changes to the Configuration panel, including:

Mode: select Infrastructure or Ad Hoc mode.

Ethernet Conversion: the default is **RFC1042**, which is the equivalent of Translation mode used in the Macintosh Wireless Control Panel. You can also choose **Encapsulation** mode.

Tx Rate: the default setting is Fully Automatic, allowing the driver to adjust the data transfer rate automatically.

WEP: if you do not want to use WEP, leave **Disabled** selected. Select **Mandatory** from the WEP pop-up menu to enable WEP if you want to use Wireless Encryption on your network. WEP can be used when in Ad Hoc or Infrastructure mode.



Using WEP: If you are using **Ad Hoc** mode with another Windows machine that has the SkyLINE driver installed, enter the same passphrase in each computer's configuration panel and click the **Generate** key.

If you are setting the computer up for an **Infrastructure** network using an access point with WEP enabled, you will need to set up the Keys in the WEP panel. Select the Key you want to set up in the **Default Key** pop-up menu. Then do one of the following:

- Enter the ten digit alpha numeric key from your access point configuration into the appropriate WEP Key field and click **Write**. If you are using an AirPort base station, you can get this ten digit alpha numeric key by selecting **Network Equivalent Password** from the AirPort Admin Utility menu.
- Enter a Key supplied by your network manager directly into the provided boxes. When you click the **Write** button, the key will be recorded by the driver. The next time you open the panel the information will not appear, but it will have been stored.

3. After restarting your computer, test your network by double clicking the **Network Neighborhood** icon. You will see the other computers in your workgroup.

CHAPTER 3

Operation and Troubleshooting

This chapter covers SkyLINE 11Mb Wireless PC Card operation and troubleshooting for Mac OS and Windows in the following sections:

“SkyLINE card operation” covers operation of the SkyLINE 11Mb Wireless PC Card, including:

- “Macintosh card operation” on page 24
- “Windows card operation” on page 25
- “Windows NT card operation” on page 25

“Troubleshooting” on page 26 gives some basic troubleshooting tips, including:

- “Macintosh troubleshooting” on page 27
- “Windows troubleshooting” on page 30

SKYLINE CARD OPERATION

When properly installed, Farallon's SkyLINE 11Mb Wireless PC Card will be recognized automatically by Mac OS and Windows 95/98. These systems will disable the driver and disconnect power to the card slot when the card is removed, and then reload the driver and restore the network connection when the card is re-inserted.

SKYLINE 11MB WIRELESS PC CARD LED

The card's LED is solid when the card has link to a wireless network, and blinks when searching for a network to connect to.

MACINTOSH CARD OPERATION

1. Insert the card into a PCMCIA slot. The **Farallon Wireless** icon will appear on your desktop.
2. Open the **AppleTalk** Control Panel. (You may need to make AppleTalk active)
3. Check that **Farallon Wireless** is selected in the **Connect Via** menu and close the Control Panel, saving your changes.

TO EJECT THE CARD

1. Drag the **Wireless** icon off of the desktop, into the trash.
2. The card will automatically be ejected when the driver is disabled.

Note: When ejecting the card from PowerBook models 190, 1400 and 5300, you must select a new AppleTalk connection (by selecting **IRTalk** or **Modem/Printer** from the **Connect Via** menu) before ejecting the card. Close the Control Panel, saving your changes.

WINDOWS CARD OPERATION

WINDOWS 95/98

Disable the card before removing it from the PC slot:

1. Click **Start** in the Windows taskbar.
2. Select **Settings** and **Control Panel**.
3. Double-click the **PC Card** icon to open the PCMCIA properties window.
4. Select the slot your wireless card is installed in, and click the **Stop** button.
5. When the operating system acknowledges the card has been disabled, remove it from the slot.

WINDOWS NT CARD OPERATION

Windows NT 4.0 does not support plug-and-play operation. In order to eject or re-install the SkyLINE 11Mb Wireless PC Card, follow these steps:

1. Power off your computer.
2. Insert or re-insert the SkyLINE 11Mb Wireless PC Card into the PCMCIA slot.
3. Restart the computer.

TROUBLESHOOTING

If you have trouble with your card, there are some basic troubleshooting steps you can try. For more information, see the user guide for any access points you are using with your wireless network.

No CD-ROM DRIVE ON YOUR COMPUTER

If you do not have a CD-ROM drive in your computer, you can download the driver software from the Farallon website at www.farallon.com. A disk image is also available on the SkyLINE CD-ROM, which can be used to create an installer diskette on a machine with a CD-ROM drive. For help, contact Farallon customer service at (510) 346-8001.

ENVIRONMENT AND OPERATION

Operation can be affected by barriers and signal noise in the area.

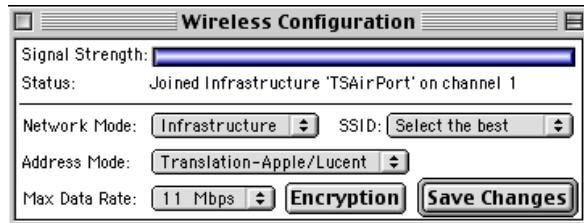
PROBLEM	POSSIBLE CAUSE	SOLUTION
performance level low	<u>local noise or traffic</u> <u>metal or concrete barrier</u> <u>out of range</u>	<u>relocate computer away from electronic equipment or barriers</u> <u>relocate computer closer to access point or decrease transmission data rate</u> <u>elevate access point in use</u> <u>install additional access points</u> <u>try a different channel</u>
workstation cannot connect to network	<u>incorrect network name entered for SSID</u> <u>driver not installed or loaded</u> <u>address mode configuration error</u> <u>too far from access point or ad hoc partner</u>	<u>check card configuration</u> <u>reinstall driver</u> <u>check that card and driver are enabled</u> <u>relocate computer closer to access point or ad hoc partners</u>

MACINTOSH TROUBLESHOOTING

OPERATION CHECKLIST

For proper card operation, verify the following:

- The LED on the card is lit. If the LED is not lit at all, it may not be securely seated in its PCMCIA slot. The card's LED is lit solid when the card has link, and blinks when searching for a network.
- The Farallon driver is installed.
- The Farallon Wireless card icon appears on the desktop when the card and driver are installed.
- The Farallon Wireless card is selected in the AppleTalk and TCP/IP Control Panels of the Macintosh and that AppleTalk is active.
- All devices on the wireless network, including any access points, are set to the same configuration settings. Check the Wireless Control Panel for configuration settings and network information. Clicking the Save Changes button will reset the connection.



Read the Installation chapter of this manual for card configuration instructions.

- Make sure that all Ad Hoc networks are started when computers are within range of each other.

IF YOU HAVE PROBLEMS WITH THE CARD

- Make sure the SkyLINE 11Mb Wireless PC Card is selected in the AppleTalk and TCP/IP Control Panels.
- Make sure you open the AppleTalk Control Panel and turn on AppleTalk each time you insert the wireless card.
- Check all configuration settings as described in “Configuring the SkyLINE Card for Macintosh” on page 8.
- Reinstall the card and driver.

If the desktop icon does not appear or is generic:

- Make sure to install the Farallon driver before inserting the card. The driver enables your computer to recognize the card. If you insert the PC Card before installing the driver, the desktop icon will appear as a generic icon. (Please note that Macintosh PowerBook models 190, 1400 and 5300 may display a generic icon even if the driver is installed.)
- Verify that you have the correct extensions for your System. If the System extensions are missing, the Farallon desktop icon will not appear.

If the card will not eject:

- Open the AppleTalk Control Panel and select something other than the SkyLINE 11Mb Wireless PC Card (such as IRTalk or Modem/Printer). Then close the Control Panel, and try dragging the Farallon Wireless desktop icon to the Trash again. If this does not work you may have to shut your computer down, then start up and try again.

If the card seems to work but network applications don't connect:

- Try moving closer to the access point on an Infrastructure network or try moving closer to the other computers on an Ad Hoc network. If the computers can communicate at close range but not at a greater distance, there may be interference creating blind spots or some environmental factor limiting range.
- Try opening the Wireless Control Panel and clicking the Save Changes button without making any changes. This will reset the connection.

CHECKING INSTALLED FILES

Check to make sure the Wireless application installed all of the correct files into the System Folder.

3X SYSTEMS (POWERBOOKS 2400 - G3 AND NEWER)

- “Wireless” Control Panel
- “Wireless drvr (3.x11)” Extension
- “Wireless PC Card Enabler 11” Extension
- “Wireless 11_prefs”

2X SYSTEMS (POWERBOOKS 190, 5300 AND 1400)

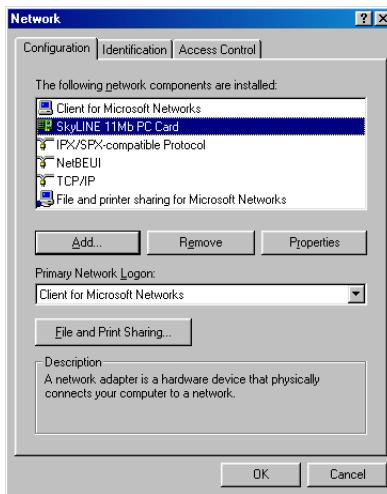
- “Wireless” Control Panel
- “Wireless PC Card Ext (2.x)” Extension
- “Wireless 11_prefs”

WINDOWS TROUBLESHOOTING

OPERATION CHECKLIST

For proper card operation, verify the following:

- The LED on the card is lit. If not, check that the card is securely seated in its PCMCIA slot.
- The Farallon driver is installed.
- The SkyLINE Wireless card appears in the Control Panel when the card and driver are installed.
- The SkyLINE monitor icon appears in the taskbar.
- The SkyLINE Wireless card is installed in the Network Control Panel.

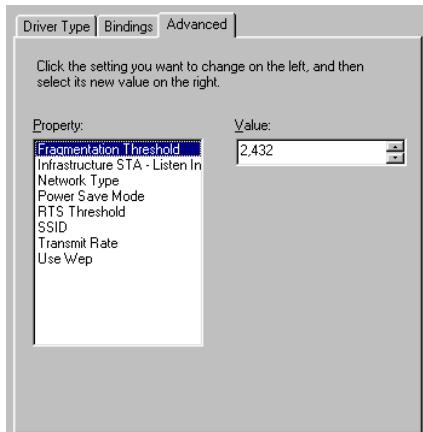


- All workstations are configured correctly, with channel and address modes set to reflect the settings of the network access points in use.

Please see "Configuring the SkyLINE Card for Windows" on page 21 for more information.
- The Advanced Properties settings in the Windows 95/98 Network Configuration panel are set to their defaults. Changing these settings may adversely affect your network performance.

Check the following list for default settings.

The default Advanced Properties settings are:



Fragmentation Threshold	2,432
Infrastructure STA	3
Network Type	Infrastructure
Power Save Mode.....	Disabled
RTS Threshold	2,432
SSID	(name of your network)
Transmit Rate	Fully Auto
Use Wep	Disabled

IF YOU HAVE PROBLEMS WITH THE CARD

- Check all configuration settings.
- Make sure you are using the latest system BIOS.
- Check your network protocols:
 - NetBEUI is commonly used for printer and file sharing as supported by Microsoft networking for Windows Workgroups.
 - TCP/IP is used when you use IP addressing on your network or you are connecting to the Internet.
- Reinstall the card and restart the computer.
- Uninstall, and then reinstall the driver. To uninstall the driver and configuration application, select **Start > Programs > SkyLINE Wireless > Uninstaller.**

WINDOWS NT DIAGNOSTICS

If you have trouble when using your card with Windows NT, you can use Windows NT Diagnostics to check the following items.

1. Click **Start** in the Windows taskbar.
2. Select **Programs > Administrative Tools**.
3. Click **Windows NT Diagnostics**.
4. Click the **Resources** tab.
5. Click **IRQ** to display IRQs in use by other devices.
6. The default IRQ for the PCMCIA card is 09. If this is in use by another device, you must select another IRQ for the PCMCIA card.
7. Click on the **Memory** tab to open the Memory box.
8. Look for an entry that includes **CW10**.
If it is present, the card is properly installed.
If **CW10** is not present, continue below.
9. Right-click on **Network Neighborhood** icon on the desktop. Left-click on **Properties**.
10. Click on the Adapters tab and then on the **Properties** button.
11. In the **Adapter Setup** dialog box, change the **Memory Base** from C8000 to DF000. Click **OK**. Restart if prompted.
12. Click on the **Protocols** tab and verify that the NetBEUI and TCP/IP protocols are active. If not, click on the **Add** button to add each of them.
13. Click on the **Identification** tab to set up your Workgroup. Give your computer a unique name and a workgroup name. All computers that are intended to share file or printers must use the same workgroup name.
14. Click **OK** to register any changes.
15. Click **Close** in the Network dialog box to complete setup.

CHAPTER 4

Farallon Technical Support

Farallon is committed to providing its customers with reliable products and excellent technical support. We encourage you to register your SkyLINE 11Mb Wireless PC Card (please see the registration card included in your package).

Please look in this user's guide for possible solutions to any problems you come across, and be sure to read any paper release notes or electronic Read Me files that you receive from Farallon.

If you contact us by telephone, please be at the site of the problem, prepared to reproduce it and to try some troubleshooting steps.

If you have any questions, concerns, or suggestions, please contact us by telephone, fax, mail, or the Internet:

Phone: (510) 346-8001

Phone support hours are 7:00 am to 4:30 pm PST.

Fax: (510) 346-8116

Mail: Farallon Customer Service
3089 Teagarden St.
San Leandro, California 94577-5720
USA

E-mail: info@farallon.com

FARALLON INTERNET INFORMATION RESOURCES

Please visit our website at www.farallon.com for Farallon product information, support resources and home networking information.

OUTSIDE OF THE UNITED STATES AND CANADA

If you are not located in the United States or Canada, you can get service locally by contacting your nearest Farallon reseller or distributor. For a worldwide list of our distributors, see our Internet information resources or contact Farallon directly.

APPENDIX A - SPECIFICATIONS & REGULATIONS

TECHNICAL SPECIFICATIONS

Frequency band	2.4 GHz to 2.4835 GHz
Modulation	Spread Spectrum CCK/DBPSK/DQPSK
Number of channels	11 USA & Canada, 13 Europe, 4 France, 14 Japan
Data rate	11 Mbps, 5.5Mbps, 2Mbps, 1Mbps
Bus interface	PCMCIA Type-II
Operating Voltage	3.3V, 5V
Spreading	DSSS (Direct Sequence Spread Spectrum)
Data rate	11Mbps, 5.5Mbps, 2Mbps, 1Mbps
Transmit Power	2.7v to 3v: 14 dBm min.
Receive Sensitivity	<p>Nominal Temp Range:</p> <ul style="list-style-type: none"> - 1 Mbps10-5 BER @ -90 dBm, minimum - 5.5 Mbps10-5 BER @ -87 dBm, minimum - 11 Mbps10-5 BER @ -84 dBm, minimum <p>Extended Temp Range:</p> <ul style="list-style-type: none"> - 1 Mbps10-5 BER @ -84 dBm minimum - 5.5 Mbps10-5 BER @ -81 dBm minimum - 11 Mbps10-5 BER @ -78 dBm minimum
Temperature	Operating: 0°C to 50°C
Humidity	Operating: 95% NCH
Certifications	FCC part 15, ETSI 300.328, CE EMC-EEC, RCR, VCCI
Dimensions	110 x 54 x 6 mm
	4.33 x 2.12 x.23in
Weight	38g (.1 oz.)

REGULATORY NOTICES



FCC COMPLIANCE STATEMENT

FCC Rules and Regulations - Part 15. This product has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Installed correctly, it probably will not interfere with radio or TV reception. However, we do not guarantee the absence of interference.

This product generates and uses energy of about the same frequency as radio and TV broadcasts. Installed incorrectly, it may interfere with reception of radio and TV broadcasts. If you suspect this product is causing interference, turn your computer on and off while the radio or TV is showing interference. If the interference disappears when you turn the computer off and reappears when you turn the computer on, something in the computer is causing interference. To reduce interference, try these suggestions:

- Change the direction of the radio or TV antenna.
- Move the computer, radio or TV. For example, if the computer is to the right of the TV, move it to the left of the TV. Or move them farther apart.
- Plug the computer into a different electrical outlet than the radio or TV.
- Ensure that all expansion slots (on the back or side of the computer) are covered. Also ensure that all metal retaining brackets are tightly attached to the computer.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: If the device is changed or modified without permission from Farallon, the user may void his or her authority to operate the equipment.

**VCCI**

This product is VCCI Class B compliant.

注意

この装置は、情報処理装置等電波障害自主規制協議会(VCCI)の基準に基づく第一種情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

EUROPE - EU DECLARATION OF CONFORMITY

This device complies with the specifications ETS 300 328 and ETS 300 826, following the provisions of the EMC Directive 89/336/EEC.

INDUSTRY CANADA (IC)

This Class B device meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la Class B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

DSSS PHY FREQUENCY CHANNEL PLAN

Channel	Frequency	FCC	IC	ETSI	France	MKK
		USA	Canada	Europe	France	Japan
1	2412 Mhz	x	x	x		x
2	2417 Mhz	x	x	x		x
3	2422 Mhz	x	x	x		x
4	2427 Mhz	x	x	x		x
5	2432 Mhz	x	x	x		x
6	2437 Mhz	x	x	x		x
7	2442 Mhz	x	x	x		x
8	2447 Mhz	x	x	x		x
9	2452 Mhz	x	x	x		x
10	2457 Mhz	x	x	x	x	x
11	2462 Mhz	x	x	x	x	x
12	2467 Mhz			x	x	x
13	2472 Mhz			x	x	x
14	2484 Mhz					x

APPENDIX B - MACINTOSH CONFIGURATIONS

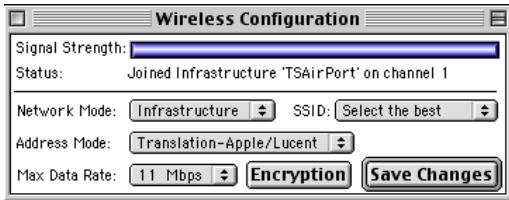
This appendix describes how to set up your SkyLINE 11Mb Wireless PC Card to work with Apple's AirPort Base Station as an access point, and with an Ad Hoc network using Lucent cards.

INFRASTRUCTURE WITH MACINTOSH AND LUCENT

Your SkyLINE 11Mb Wireless PC Card is fully compatible with Apple's AirPort Base Station, and can allow PowerBooks to join a network with AirPort-equipped iBooks, iMacs and G4s.

Note: Be sure you have the AirPort Update 1.1 and have uploaded the new software to the AirPort Base Station.

16. Open the **Wireless Configuration** Control Panel and configure the wireless card as follows:



- Set **Network Mode** to **Infrastructure**
- Set **Address Mode** to **Translation - Apple/Lucent**
- **SSID:** Choose **Select the best** if the AirPort is the only access point for your wireless network. If you have more than one access point, but you want to use the AirPort, choose **Select other** and enter the SSID name of the AirPort base station.

The SSID name is the same as the Network Name you have given the AirPort base station in the AirPort Utility. The panel is case and space sensitive, so be sure to enter the name correctly.

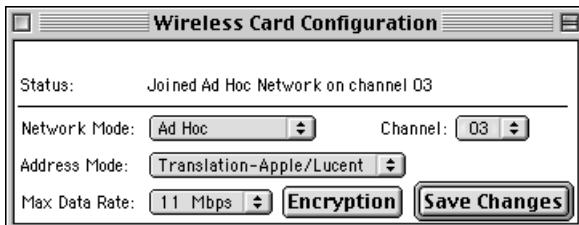
■ **WEP:** If the AirPort is set up to use WEP (with the **Enable encryption** box checked in the AirPort Utility panel), click the **Encryption** button on the SkyLINE Wireless Configuration window and enter the password used by the AirPort Base station in the space provided.

17. Click the **Save Changes** button to save your configuration.

AD HOC WITH MACINTOSH AND LUCENT

Lucent ships wireless cards with a preset fixed channel depending on the country of operation. If you plan to use Lucent cards in combination with SkyLINE cards on an Ad Hoc wireless network, you can set the SkyLINE card as follows:

1. Open the **Wireless Configuration** Control Panel.



2. Set **Network Mode** to **Ad Hoc**.
3. Set **Address Mode** to **Translation-Apple/Lucent**.
4. Set your **Channel** according to the fixed channels Lucent has assigned for your area, such as:
 - Channel 3 for USA, Canada and most of Europe
 - Channel 11 for France
 - Channel 14 for Japan
5. Click the **Save Changes** button.

GLOSSARY

802.11 This is the IEEE (Institute of Electrical and Electronics Engineers) standard for wireless networking, comparable to the 802.3 standards for wired Ethernet LANs. IEEE standards ensure interoperability between systems of the same type.

802.11b An extension of the 802.11 specification that supports speeds of 11Mbps and 5.5Mbps as well as 2Mbps and 1Mbps.

Access point A device that connects a wireless network to a wired network. Also called a base station.

Address mode This setting determines how Ethernet packets are sent on a wireless network. The two modes (Encapsulation and Translation) treat the headers of the packets differently. All of the devices on a wireless network, including any access points, must be configured to have the same address mode setting.

Ad Hoc Ad Hoc network mode allows several wireless workstations to be linked in a local area to form a wireless network. In Ad Hoc mode all the operations are peer to peer and no access point is required.

AirPort Apple's brand of wireless access point and cards. The AirPort access point must be configured using an AirPort-equipped iBook, iMac or G4. Also called AirMac in Japan.

Base station A device that connects a wireless network to a wired network (the same as an access point).

DSSS	Direct Sequence Spread Spectrum is a method of radio frequency modulation that spreads its signal continuously over a wide frequency band.
Encapsulation mode	An address mode that encapsulates an entire Ethernet packet (along with the source and destination header) inside an 802.11 frame, and adds a new header to the packet.
Ethernet packet	The fundamental message unit for communication across an Ethernet network. A packet can include routing, data and error detection information.
Infrastructure	Infrastructure network mode requires the use of an access point. All wireless communication takes place between individual workstations and the access point, which also links the wireless network to a wired LAN.
LAN (local area network)	A high-speed (2-1000 Mbps) communications network that extends no more than a few hundred meters.
Network mode	Network modes (Ad Hoc and Infrastructure) determine whether your wireless LAN is configured to connect to a wired LAN through an access point, or as a peer to peer LAN connecting workstations to each other.
SSID (Service Set ID)	The name of a wireless local area network. The SSID entry in the wireless configuration panel allows access points and wireless cards configured for the same SSID to connect to the same wireless network.
Translation mode	An address mode that translates the source and destination header of an Ethernet packet into an 802.11 header. The rest of the Ethernet packet is encapsulated inside the 802.11 frame.

WARRANTIES

LIMITED HARDWARE WARRANTY AND LIMITATION OF REMEDIES

Farallon warrants to you, the end user, that the accompanying Farallon hardware product, which may include third party products or technology (the "Product") will be free from defects in materials and workmanship under normal use for three years after purchase. This warranty will expire ninety (90) days from date of purchase on all software, whether "stand-alone" or delivered as part of a hardware product. Farallon's entire liability and your sole remedy under this warranty during the warranty period is that Farallon shall, at its option, either repair the Product or refund the original purchase price of the Product.

In order to make a claim under this warranty you must comply with the following procedure:

1. Contact Farallon Customer Service within the warranty period to obtain a Return Materials Authorization ("RMA") number.
2. Return the defective Product and proof of purchase, shipping prepaid, to Farallon with the RMA number prominently displayed on the outside of the package.

If you are located outside of the United States or Canada, please contact your dealer in order to arrange for warranty service.

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